

Analytical Biochemistry

An International Journal

EDITOR: *Alvin Nason*

ADVISORY BOARD:

Gary Ackers
Norman G. Anderson
Eraldo Antonini
Gilbert Ashwell
H. A. Barker
Samuel P. Bessman
Simon Black
Robert M. Bock
Robert L. Bowman
Ludwig Brand
A. E. Braunstein
Robert H. Burris
Melvin Calvin
Andreas Chrambach
Frank Eisenberg, Jr.
Jacques R. Fresco
Victor Ginsburg
I. C. Gunsalus
Harlyn O. Halvorson
Osamu Hayaishi

Edward C. Heath
Leslie Hellerman
C. H. W. Hirs
Evan C. Horning
Rollin D. Hotchkiss
Walter L. Hughes
William B. Jakoby
Nathan O. Kaplan
Ephraim Katchalski
Irving Klotz
Luis F. Leloir
Oliver H. Lowry
Feodor Lynen
Brian J. McCarthy
Donald McCormick
William D. McElroy
Vincent Massey
Alan H. Mehler
Bruce Merrifield

Marshall Nirenberg
Kazuo Okunuki
Sarah Ratner
Alexander Rich
David Rodbard
Gerhard Schmidt
Michael Sela
Esmond E. Snell
Herbert A. Sober
Sol Spiegelman
Paul K. Stumpf
Charles A. Thomas, Jr.
Sidney Udenfriend
Bert L. Vallee
Samuel B. Weiss
Theodor Wieland
George Wolf
W. A. Wood
Lemuel D. Wright
David A. Yphantis

VOLUME 63
1975

ACADEMIC PRESS
New York and London



A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1975 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

CONTENTS OF VOLUME 63

NUMBER 1, JANUARY 1975

SVEN MÅRDH. A Method for Measuring the Cerenkov Radiation Produced by ^{32}P in Small Sample Volumes	1
R. B. ELLIS, J. U. IKONNE, AND P. K. MASSON. DEAE-Cellulose Microcolumn Chromatography Coupled with Automated Assay: Application to the Resolution of <i>N</i> -Acetyl- β -D-Hexosaminidase Components	5
BENGT MANNERVIK. Graphical Analysis of Steady-State Kinetic Data of Multireactant Enzymes	12
AMRAM SAMUNI. A Direct Spectrophotometric Assay and Determination of Michaelis Constants for the β -Lactamase Reaction	17
WILLIAM H. PORTER. Application of Nitrous Acid Deamination of Hexosamines to the Simultaneous GLC Determination of Neutral and Amino Sugars in Glycoproteins	27
ZYGMUNT CIESLÀ, FRANCESCO SALVATORE, JAMES R. BROACH, STANLEY W. ARTZ, AND BRUCE N. AMES. Histidine Regulation in <i>Salmonella typhimurium</i> . XVI. A Sensitive Radiochemical Assay for Histidinol Dehydrogenase	44
JACK H. LADENSON, M. HUEBNER, AND J. JOSEPH MARR. Continuous Real-Time Monitoring of Metabolic Parameters in Growing Bacterial Cultures	56
CLARENCE P. BERG, CHIEN-CHYOU WANG, AND DON SHI-JSENG LIN. A Simple Method of Preparing D-($-$)-Arginine Monohydrochloride from DL-Arginine	68
ÅKE LERNMARK, JANOVE SEHLIN, AND INGE-BERT TÄLJEDAL. The Use of Dispersed Pancreatic Islet Cells in Measurements of Transmembrane Transport	73
R. G. BJORK. GLC Determination of PPB Levels of Citrate by Conversion to Bromoform	80
BOHDAN BAKAY. A Novel Method of Sample Transport and its Application for Continuous Detection of Radioactivity in the Effluent of the High Speed Amino Acid Analyzer.	87
DONALD L. HUNSTON. Two Techniques for Evaluating Small Molecule-Macromolecule Binding in Complex System	99
J. ALEX NICHOLSON AND YOUNG S. KIM. A One-Step L-Amino Acid Oxidase Assay for Intestinal Peptide Hydrolase Activity.	110
S. J. RITARI, W. SAKAMI, C. W. BLACK, AND J. RZEPKA. The Determination of Folylpolylglutamate Synthetase.	118
J. E. RAMIREZ, J. R. CAVANAUGH, K. S. SCHWEIZER, AND P. D.	

HOAGLAND. The Determination of Free ϵ -Amino Groups of Lysine in Proteins Using ^{19}F NMR Spectroscopy	130
T. GORDON WOOD AND JOSEPH R. SHAEFFER. Separation of Alpha and Beta Chains of Rabbit Globin using SDS-Polyacrylamide Gel Electrophoresis	135
S. RATNER. Determination of Argininosuccinate in Normal Blood Serum and Liver	141
FRANK R. H. KATTERMAN. Purification of DNA by Cetyltrimethylammonium Bromide as a Potential Source of Error for the Determination of 5-Methylcytosine Residues in DNA	156
R. H. HAMMERSTEDT AND W. G. NIEHAUS, JR. A Novel Method for Measurement of the Specific Radioactivity of γ - ^{32}P ATP	161
A. P. DE LEENHEER AND M. G. M. DE RUYTER. Identification of the <i>Syn</i> and <i>Anti</i> Geometric Isomers of Retinalmethoxime	169
EDWARD J. HILL, BLANCHE P. MERIWETHER, AND JANE HARTING PARK. Purification of Rabbit Muscle Glycerinaldehyde 3-Phosphate Dehydrogenase by Gel Filtration Chromatography	175
CHEN-LO H. CHEN, CHUNG-MING CHANG, ANNE M. NOWOTNY, AND ALOIS NOWOTNY. Rapid Biological and Chemical Analyses of Bacterial Endotoxins Separated by Preparative Thin-Layer Chromatography	183
FENG LAI WANG AND DEAN R. HAUBRICH. A Simple, Sensitive, and Specific Assay for Free Choline in Plasma	195
JOSEPH CHRASIL AND JOHN T. WILSON. A Sensitive Colorimetric Method for Formaldehyde.	202
U. M. BABU, R. B. JOHNSTON, AND L. C. MCNEFF. A General NMR Method for the Assay of Racemase Activity with Optically Active or Optically Inactive Substrates	208
ANTHONY SIEBEN. Cellulase and Other Hydrolytic Enzyme Assays Using an Oscillating Tube Viscometer	214
ANTHONY SIEBEN. A Recording Bridge Viscometer.	220
S. A. CLYBURN, G. F. SERIO, B. R. BARTSCHMID, J. E. EVANS, AND CLAUDE VEILLON. A Sensitive Atomic Fluorescence System for Metals in Biological Systems	231
KUNIO ARIYOSHI, KOJI NAKASHIMA, AND SHIRO MIWA. An Apparatus for Thin Layer Vertical Polyacrylamide Gel Electrophoresis with Discontinuous Buffer and Gel System	241
N. P. GROOME AND G. BELYAVIN. Flat Bed Gel Isoelectric Focusing of Neuraminidases	249
P. L. LARKINS AND J. R. MELDRUM. Simple Dual-Beam Protein Meters	255

SHORT COMMUNICATIONS

I. WILLHARDT AND B. WIEDERANDERS. Activity Staining of Cystathionine- β -Synthetase and Related Enzymes	263
WILLIAM F. BURKE AND HENRY C. REEVES. Artifactual Staining in Polyacrylamide Gels in the Determination of the Oligomeric State of Proteins by Dimethyl Suberimidate Cross-linking	267
RENZE BAIS. A Rapid and Sensitive Radiometric Assay for Adenosine Triphosphatase Activity using Čerenkov Radiation	271
M. RAMACHANDRA PAI, N. JAYANTHI BAI, AND T. A. VENKITASUBRAMANIAN. Separation of Aflatoxins by Column Chromatography	274
ROBLEY C. WILLIAMS, JR. AND HELEN KIM. Thin Centerpieces for Ultracentrifugation of Concentrated Solutions	277
ROBERT A. HANNULA AND JAMES A. FEE. A Simple Analog Integrator. Application to First Derivative EPR Spectra	279
ROBERT M. SILVERSTEIN. The Determination of the Molar Extinction Coefficient of Reduced DTNB . . .	281
ARTHUR DALBY AND CHIA-YIN TSAI. Acetic Anhydride Requirement in the Colorimetric Determination of Tryptophan	283
DONALD C. WIGFIELD. On the Myth that Benzoic Acid is Adsorbed on the Walls of Liquid Scintillation Counting Vials	286
H. S. CHANG, A. R. ROBINSON, AND R. H. COMMON. Lability of Equol to Acidic Hydrolysis Procedures . . .	290

NUMBER 2, FEBRUARY 1975

G. WETTERMARK, H. STYMNE, S. E. BROLIN, AND B. PETERSON. Substrate Analyses in Single Cells. I. Determination of ATP	293
MAMORU HASEGAWA AND ISAO MATSUBARA. Gas Chromatographic Determination of the Optical Purities of Amino Acids Using <i>N</i> -Trifluoroacetyl Menthyl Esters	308
CLAUDE BALNY, CHRISTIAN LE PEUCH, AND PASCALE DEBEY. Low Temperature Column Chromatography: Application to Microsomal Hydroxylating System	321
NELLY BLUMENKRANTZ AND GUSTAV ASBOE-HANSEN. An	

Assay for Hydroxyproline and Proline on One Sample and a Simplified Method for Hydroxyproline	331
J. D. TJEPKEMA AND C. S. YOCUM. Steady-State Measurements of Respiration Rate with an Oxygen Electrode	341
MAX SCHICK. Influence of a Cationic Detergent on Electrophoresis in Polyacrylamide Gel	345
SUSAN L. PUTNAM AND ARTHUR L. KOCH. Complications in the Simplest Cellular Enzyme Assay: ¹ Lysis of <i>Escherichia coli</i> for the Assay of β -Galactosidase	350
GEORGE E. TARR. A General Procedure for the Manual Sequencing of Small Quantities of Peptides	361
F. N. CHANG. A Sensitive Method for the Quantitative Determination of Minor Bases in Ribosomal RNA	371
SILVIO SPADARI. Use of ¹²⁵ I-Labeled Polydeoxycytidylic Acid as a Sensitive Assay of DNA Ligase Activity.	380
R. J. BOUDREAU AND G. I. DRUMMOND. A Modified Assay of 3';5'-Cyclic-AMP Phosphodiesterase	388
LINDA W. GONZALES AND STANLEY E. GEEL. Thin-Layer Chromatography of Brain Adenine Nucleoside and Nucleotides and Determination of ATP Specific Activity	400
CHI-SUN WANG AND ROBERT L. SMITH. Lowry Determination of Protein in the Presence of Triton X-100	414
RICHARD L. BRUNKER. Autoinjector for the Determination of Picomolar Quantities of ATP with a Liquid Scintillation Counter.	418
PIER GIORGIO RIGHETTI, ADRIANA BIANCHI BOSISIO RIGHETTI, AND ENNIO GALANTE. Some Optical Properties of Carrier Ampholytes for Isoelectric Focusing	423
PHILIP C. BEERS AND JAMES L. WITTLIFF. Measurements of DNA and RNA in Mammary Gland Homogenates by the Ethidium Bromide Technique	433
NOLA A. CAFFIN AND A. G. MACKINLAY. Fractionation of DNA on Benzoylated DEAE-Cellulose	442
A. M. WOODIN. Inhibition of the <i>p</i> -Nitrophenyl Phosphatase of Leukocyte Membranes by <i>p</i> -Nitrophenyl Phosphate Preparations	452
KARL M. JAKOB, JONATHAN GRESSEL, AND ISRAEL TAL. Removal of Pectins from Methylated rRNA and Precursors by LiCl	457
MARK J. KRANTZ AND Y. C. LEE. A Sensitive Autoanalytical Method for Sialic Acids	464
J. W. DEPIERRE, M. S. MORON, K. A. M. JOHANNESSEN, AND L. ERNSTER. A Reliable, Sensitive, and Convenient Radioactive Assay for Benzpyrene Monooxygenase	470
LAWRENCE J. LIN AND JOSEPH F. FOSTER. Agarose-DTNB	

Column for Binding Sulfhydryl-Containing Proteins and Peptides	485
KENNETH F. MANLY. A Continuous-Flow System for the Growth of RNA Tumor Viruses	491
C. D. PFAFFENBERGER, J. SZAFRANEK, M. G. HORNING, AND E. C. HORNING. Gas Chromatographic Determination of Polyols and Aldoses in Human Urine as Polyacetates and Aldononitrile Polyacetates	501
MING MAN, ROSA M. GRYDER, AND ELIJAH ADAMS. Chromatographic Heterogeneity of 3-Hydroxyproline and its Basis	513
WILLIAM V. ZUCKER. A New Method for Assaying Peptidyl-tRNA Hydrolase	522
DAVID A. COONEY, HARRY A. MILMAN, AND ELTON R. HOMAN. A Radiometric Technique for Measuring Nicotinamide Adenine Dinucleotide in Femtomole Quantities: Methodology and Application	528
JAMES K. STOOPS AND MYRON L. BENDER. A Spectrophotometric Assay for Determining the Rate Constants of Acetylcholinesterase Inhibitions	543
UWE FRICKE. Tritosol: A New Scintillation Cocktail Based on Triton X-100.	555
ANTONIO ORENGO, JEFFREY GREENSPAN, AND JACK D. LOVE. Separation of Cyclic AMP from Adenine and Hypoxanthine, Their Nucleosides and Nucleotides by High Voltage Paper Electrophoresis	559
JORMA VIHKARI. Direct Counting of Tissues Containing Radioactive Cholesterol by a Two-Phase Liquid Scintillation Method.	566
K. SAHLIN, R. C. HARRIS, AND E. HULTMAN. Determination of Metabolites by Observing the Change in Reaction Rate During the Early Course of a First Order Reaction, as Applied to Fructose-1-Phosphate.	572
SHORT COMMUNICATIONS	
HANS E. HAGENMAIER. Polyacrylamide Gel Electrophoresis as a Method for Differentiation of Gut Proteinases Which Catalyze the Hydrolysis of Amino Acid Naphthylamides	579
MARIA ISABEL POUCHAN AND EDUARDO J. PASSERON. Photochemical Degradation of Dansyl Amino Acids on Thin-Layer Chromatography Plates	585
TETSURO KONO AND FRANCES W. BARHAM. A Water Fountain for Decontamination of Used Vials and Test Tubes	592

CLAUDIA FENNER, ROBERT R. TRAUT, DEAN T. MASON, AND JOAN WIKMAN-COFFELT. Quantification of Coomassie Blue Stained Proteins in Polyacrylamide Gels Based on Analyses of Eluted Dye	595
C. ARAGONCILLO, M. A. RODRIGUEZ-LOPERENA, PILAR CARBONERA, AND F. GARCIA-OLMEDO. Nigrosine Staining of Wheat Endosperm Proteolipid Patterns on Starch Gels	603
HELEN H. HESS AND JULIA E. DERR. Assay of Inorganic and Organic Phosphorus in the 0.1–5 Nanomole Range .	607
ANN MARIE FALLON AND G. R. WYATT. An Improved Assay for Cyclic GMP using an Insect Binding Pro- tein	614
JOHN J. MONAHAN AND ROSS H. HALL. Reduced Effect of 50% Formamide upon T_m of DNA Absorbed on Hydroxylapatite Columns	620
KLAUS D. KULBE AND YOLANDA MARIA NOGUEIRA-HAT- TESOHL. Identification of Subnanomole Amounts of Phenylthiohydantoin of the Cysteine and Methionine Derivatives Most Commonly Obtained in Protein Se- quencing	624
EUGENE JACKIM. A Simple Method for Providing Liquid Scintillation Counters with External Fluor, Well Counting Capabilities	630
ATSUSHI OIKAWA AND MICHIE NAKAYASU. Solution of Eumelanin Showing No Light Scattering	634
AUTHOR INDEX	638

Subject Index for Volume 63 will appear in the December issue
as part of a cumulative index for the year 1975.